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IS 14130 (1994): Hydraulic lifting table [MED 7: Material Handling Systems and Equipment]



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भारतीय मानक

द्रवचालित उत्थापन मेज — विशिष्ट

Indian Standard

**HYDRAULIC LIFTING TABLE —
SPECIFICATION**

UDC 621.876 - 82 (083)

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**BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002**

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Non-powered Material Handling Equipment Sectional Committee had been approved by the Heavy Mechanical Engineering Division Council.

Hydraulic lifting table is useful for loading/unloading of heavy machine/goods, press tools, maintenance of the machines, truck loading/unloading, feeding of sheets into shearing machines, transportation of goods and various other jobs. This, hydraulic lifting table is manually operated with the help of hydraulic hand pump for lifting and lowering and it can be moved manually to a short distance.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

HYDRAULIC LIFTING TABLE — SPECIFICATION

1 SCOPE

This Indian standard covers principal dimensions and requirements of hydraulic lifting tables used for loading/unloading loads up to 1 000 kg.

2 REFERENCES

The Indian Standards listed in Annex A are necessary adjunct to this standard.

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Hydraulic Lifting Table

A hydraulic lifting table is a load elevating truck consisting of elevating platform, base frame, scissor type mechanism connected with elevating platform, and base frame. The elevating motion is being manually produced with the help of hydraulic hand pump for raising the load to the required height; fitted with wheels and castors by which lifting table can be moved manually. The hydraulic pump shall be fitted with the relief valve so that no excess load than the rated can be lifted.

3.2 Scissor Arms

The scissor arms are structurally designed members capable of withstanding at least three times the shock loading coming upon them, made out of mild steel flats/reinforced sections having ends profile cut and ground. Holes are made by use of drill jig so as to achieve the exact parallel operational rigidity.

4 TYPES

4.1 Mobile

Mobile type lifting tables have a set of two wheels at one end and another set of two swivel castors at handle end so that it can be moved manually.

4.2 Static

Static type lifting tables does not have wheels and castors. Such tables are mounted on fixed installation; so that it can be used only for lifting and lowering the load.

5 CONSTRUCTION AND SHAPE

The construction and shape of the hydraulic lifting table shall be as shown in Fig. 1. The

frame shall be properly fabricated so that the working stresses in all parts are well within the strength limits of material used.

5.1 Wheels and Castors

The Wheels and castors used for hydraulic lifting table shall conform to IS 7369 : 1983.

5.2 Hydraulic System

Hydraulic system of the lifting table shall comprise of a precisely ground and hard chromed piston, operating in quality honed cylinder fitted with hydraulic seals conforming to IS 12484 : 1988.

6 DIMENSIONS AND CAPACITY

The dimensions and capacity of the hydraulic lifting tables shall be as shown in Table 1.

**Table 1 Dimensions and Capacities of
Lifting Tables**

Platform Size $L \times W$ (mm)	Overall Length L_1 (mm)	Closed Height H_1 (mm)	Elevated Height H_2 (mm)	Lift Height H (mm)	Capacity (kg)
1 300 × 700	1 630	255	1 055	800	
1 300 × 900	1 630	255	1 055	800	500
1 680 × 700	2 010	275	1 325	1 050	and
1 680 × 900	2 010	275	1 325	1 050	1 000
2 060 × 700	2 230	325	1 625	1 300	
2 060 × 900	2 230	325	1 625	1 300	

7 TOLERANCES

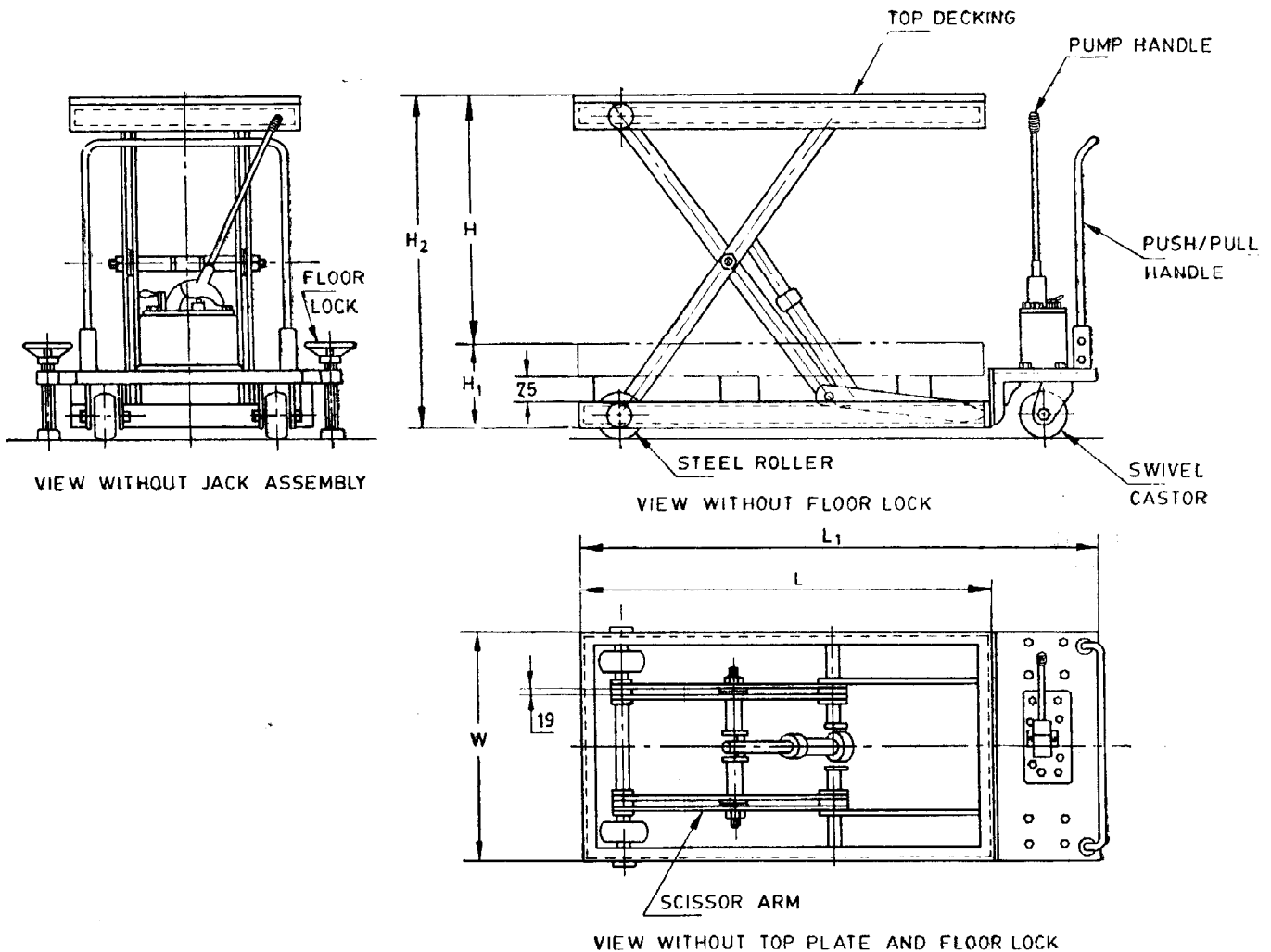
7.1 Tolerance on platform size and overall size shall be ± 5 mm.

7.2 Tolerance on "Lift H " shall be $\pm \frac{10}{5}$ mm.

8 WORKMANSHIP AND FINISH

8.1 The hydraulic table shall be designed and manufactured as per established engineering practices.

8.2 The hydraulic lifting tables shall be free from deformation in structural framework, blow holes and other defects in casting.



All dimensions in millimetres.

FIG. 1 HYDRAULIC LIFTING TABLE

8.3 Each hydraulic lifting table shall be free of rust, millscale, dirt, oil etc. and thoroughly cleaned, if needed with chemical solution and rinsed. Subsequently each table shall be given one coat of red oxide primer (see IS 2074 : 1992) and then two coats of synthetic enamel paint (see IS 2932 : 1974) in colour/shade as agreed (see IS 5 : 1978).

8.4 The painted surface shall be free from wrinkles, irregular painting, dripping, scratches and irregularities in colouring.

9 MATERIAL

Framework and scissor arms shall be made of structural steel conforming to IS 2062 : 1992. Top/bottom frame members shall be made out of rolled/hollow steel sections (see IS 808 : 1989 and IS 4923 : 1985 respectively). Handle shall be made from mild steel tubular pipes conforming to IS 1239 (Part 1) : 1990. Decking shall be made from mild steel chequered plate (see 3502 : 1981).

10 PERFORMANCE

When the lifting table is traversed over a smooth road with the permissible carrying load the wheels and swivel castors shall turn smoothly and other parts shall function satisfactorily in both raised and lowered position.

10.1 Load Test

Place the evenly distributed rated load on the top platform of the lifting table. Raise the load by pumping hydraulic unit of the table to its maximum height and leave it at the top most position for thirty minutes. The load shall not come down more than 3 mm during this period on its own.

10.1.1 Repeat the above test with 25 percent over load. The load shall not come down at a rate more than 5 mm/min.

10.1.2 After the completion of the test there shall be no permanent set or distortion in the structure or any member of the structure of the lifting table.

10.1.3 After loading the lift table gently at 50 percent overload there shall be no permanent distortion in the structure or any member of the structure.

10.2 Endurance Test

The hydraulic lifting table platform shall be loaded with a static load of 100 percent of the nominal lifting capacity and operated from the minimum to the maximum position and back. After repeating this cycle 25 times the hydraulic table shall work smoothly throughout the range without undue play or slip between the moving parts.

10.3 Stability Test (Applicable to Mobile Lift Tables)

Mobile lift tables shall be subjected to the stability test by applying 1.25 times the rated load at a point at a distance of L/5 and W/5 from the sides of the table on a floor having gradient 1 : 20 in either direction. The lift table shall remain stable during the test.

10.4 Handle

The push handle shall withstand a minimum horizontal force equal to 230 N plus 2 percent of the rated load, without breaking or permanently bending.

11 SAFETY FEATURES

11.1 Sufficient clearance, minimum 20 mm, shall be kept between scissor arms to prevent trapping of fingers.

11.2 Sufficient gap, minimum 100 mm, between top and bottom platform shall be kept when the lifting table is at rest to prevent trapping of the foot.

11.3 Lifting table shall have floor locks for maximum stability while loading/unloading.

11.4 Lifting table shall have hinged type lever fitted with scissor arms which shall lock the top platform at the elevated position while maintenance of hydraulic sacks or other parts of the lifting table.

12 DESIGNATION

The hydraulic lifting table shall be designated by its load carrying capacity and the number of this standard.

13 MARKING

The hydraulic lifting table shall be marked with the following information in visible position:

- a) Designation;
- b) Manufacturing number;
- c) Date of manufacture; and
- d) Indication of the source of manufacture.

13.1 BIS Certification Marking

The product may also be marked with Standard Mark.

13.1.1 The use of the Standard Mark is governed by the provisions of Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

ANNEX A (Clause 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
5 : 1978	Colours for ready mixed paints and enamels (<i>third revision</i>)	2074 : 1992	Ready mixed paint, air drying, red oxide-zinc chrome priming (<i>second revision</i>)
808 : 1989	Dimensions for hot rolled steel beam, column channel and angle sections (<i>third revision</i>)	2932 : 1974	Enamel, synthetic, exterior (a) undercoating, (b) finishing (<i>first revision</i>)
1239 (Part 1) : 1990	Mild steel tubes, tubulars and other wrought steel fittings: Part I Mild steel tubes (<i>fifth revision</i>)	3502 : 1981	Steel chequered plates (<i>first revision</i>)
2062 : 1992	Steel for general structural purposes (<i>fourth revision</i>)	4923 : 1985	Hollow steel sections for structural use (<i>first revision</i>)
		7369 : 1983	Specification for wheels and castors (<i>first revision</i>)
		12484 : 1988	Cup seals for fluid power applications.

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